## Who Are You, Elena Ferrante? A Computational Authorship Analysis via Clustering and Unmasking Methods

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#### Abstract

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002 The aim of the current paper is to bring a contribution to the ongoing debate regarding the 003 true identity of the author behind the pen name 005 Elena Ferrante using stylometric methods that have not been applied to this problem before. 007 The two main methods we used were hierarchical clustering based on rank distance and umasking. All experiments pointed towards Domenico Starnone as the author behind the 011 Ferrante corpus, strengthening the conclusions 012 of previous research.

#### 013 1 Introduction and Related Work

Authorship attribution is a centuries-old dilemma, 015 as works with disputed or anonymous authors date as far as the first encounters of written texts. Mod-016 ern computational methods have made significant 017 contributions to the field by quantitatively analyz-018 ing writing styles, linguistic patterns, and other 019 features that are unique to individual authors (Stamatatos, 2009). Contemporary stylometry-based 021 authorship attribution methods stem from the as-022 sumption that each writer will leave a unique and unconscious fingerprint on their work, compris-024 ing of lexical and syntactic patterns and which is more or less consistent throughout an entire body of works (Van Halteren et al., 2005; Koppel et al., 027 2009; Holmes, 1994; Juola, 2008). 028

While the field of stylistics in literary theory aims to capture and interpret the purposeful syntactic and idiomatic choices of the author alongside the meanings they convey (Shen, 2017), authorship computational analyses are concerned with the so-called "human stylome" (Van Halteren et al., 2005) - the unconscious language patterns. We thus make a distinction between *style*, which entails a certain degree of intention, and *stylistic fingerprint*, which is unique and unconscious for each individual writer.

040 Up to date, numerous authorship controversies

have been investigated or solved by means of com- 041 putational methods (Mosteller and Wallace, 1964; 042 Craig and Kinney, 2009; Labbé and Labbé, 2001; 043 Juola, 2015). In the last two decades, readers, 044 journalists and computational linguists have been 045 riddled by the case of Elena Ferrante, an anony- 046 mous author who has risen to international fame 047 with the trilogy L'amica geniale, deemed the New 048 York Times' No. 1 book of the century (The New 049 York Times, 2024). The true identity of the writer 050 remains however one of the best-kept editorial 051 secrets, and numerous journalistic investigations 052 haven't been able to uncover the truth. Several 053 Italian authors, both male and female, have been 054 proposed as the real writer behind the Ferrante nov- 055 els.

In 2016, Italian journalist Claudio Gatti claimed 057 to have uncovered the real "Ferrante" by tracing 058 the payments made by her publishers all the way 059 to Anita Raja, a translator from German and the 060 wife of writer Domenico Starnone (Gatti, 2016). 061 In 2017 however, University of Padua organized 062 an invitation-based workshop (Tuzzi et al., 2018a) 063 where international experts conducted a series of 064 experiments based on a corpus of 150 novels writ- 065 ten by 40 Italian authors. The collective consensus 066 was that the Ferrante novels were most likely writ- 067 ten by Domenico Starnone. The similarity between 068 Doemico Starnone and Elena Ferrante's novels was 069 found to be so high that Swiss researcher Jacque 070 Savoy offered a reward of 20 Euros to whomever 071 might bring compelling scientific proofs that the 072 real author behind the novels is someone other than 073 Starnone (Savoy, 2018b). Nevertheless, Starnone 074 denied all claims. 075

Numerous computational methods have been employed in the case of Elena Ferrante, including approaches based on semantic similarity (Juola, 2017) 078 and methods based on word frequencies such as 079 Burrow's Delta and Labbé's distance (Tuzzi et al., 080 2018b; Savoy, 2018a; Rybicki, 2018). The cur- 081

rent paper aims to bring a new contribution to this remarkable debate by employing authorship attri-083 bution methods that so far have never been used 084 on the Ferrante corpus. Taking advantage of the insights provided by previous research, our goal was to answer two main questions: (1) Can we fur-087 ther the claim that Domenico Starnone is the writer behind Elena Ferrante, and (2) Can we find evidence supporting the Anita Raja lead? To address 090 these questions, the study is structured as follows: 091 Section 2 outlines our methodology, followed by a description of the experiments and results in Section 3. Finally, Section 4 presents and analyses our conclusions. 095

### 096 2 Methodology

In order to investigate the authorship of Elena Ferrante's novels, a first step was to generate a corpus of works written by Elena Ferrante, as well as works of possible candidates. We followed the description of the Padova corpus and decided to select a smaller amount of authors, each represented of at least 4 works. For a detailed description of the pre-processing steps, see Section 2.1.

Before delving into the two main authorship attribution experiments, we visually inspected the
data via PCA (Principal Component Analysis) in
order to reveal some insights regarding potential
similarities among authors.

Then, to test the authorship hypotheses, we em-110 ployed two techniques based on supervised and 111 unsupervised machine learning algorithms. The 112 first approach was hierarchical clustering based on 113 similarity distances. As a similarity metric, we 114 employed rank distance (RD) based on function 115 words frequencies - which was successfully used in 116 previous studies concerning authorship problems 117 (Popescu and Dinu, 2008; Dinu et al., 2008). The 118 method is further detailed in Section 2.2. 119

The second approach was the Unmasking method proposed by Koppel et al. (Koppel et al., 2007), which evaluates how steeply the accuracy of a Support Vector Machine (SVM) model declines as the most informative features that differentiate two authors are gradually removed. The method is described in detail in Section 2.3.

#### 127 2.1 Data

Our corpus is composed of 30 Italian authors, eachbeing represented by at least four works. We in-cluded 14 novels written by Domenico Starnone

and 8 of Elena Ferrante's novels. In order to test 131
the Anita Raja hypothesis, we included 8 novels 132
translated by Raja into Italian, as well as excerpts 133
from interviews, prefaces and afterwords authored 134
by her. The complete description of the corpus can 135
be found in the Appendix (Table 1). 136

We preprocessed all texts by removing punctu- 137 ation, lowercasing all letters and deriving the lem- 138 mas using the TreeTagger POS tagger (Schmid, 139 1995). 140

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#### 2.2 Clustering via Rank distance

We start from the assumption that, in order to assess 142 the so-called stylome of an individual writer, we 143 need to identify some parameters that are present 144 across all texts regardless of its content. Thus, these 145 parameters need to be unambiguous, quantifiable 146 and used in an unconscious way. For precisely 147 these reasons, function words are often used as 148 stylistic indicators in computational analyses of 149 texts across different languages (Chung and Pen- 150 nebaker, 2011). Function words have successfully 151 been employed in computational authorship attri- 152 bution in cases such as The Federalist Papers in 153 English, the case of the Mateiu Caragiale imper- 154 sonators in Romanian (Dinu et al., 2008), etc. We 155 chose a list of Italian function words composed of 156 134 words (Ranks.nl, n.d.) to which we added one 157 more entry to compensate for the forms of the verb 158 "essere" lost through lemmatization. The full list 159 of functional words is presented in Fig. 8. 160

We then filtered out all the content words, re- 161 ducing our text entries to function words which 162 we ordered according to frequency in descending 163 order, as a preparation step for calculating the Rank 164 distances. 165

Rank distance (Dinu, 2003) is an ordinal metric 166 related to the Spearman's footrule . In order to cal- 167 culate the rank distance between two texts, the raw 168 frequencies in the ordered lists are replaced with 169 their ranks. The word with the highest frequency 170 will be assigned the highest rank, while the words 171 that are present on the function words list but ab- 172 sent in the text will be assigned the rank 0. Tied 173 objects are assigned the average rank of the posi- 174 tions they share. As a result, we obtain a data frame 175 that displays the rank of each function word within 176 each specific text. We then compute the pairwise 177 ranking distance between each two texts according 178 to the following formula (L1 norm), where  $\sigma(i)$  179 represents the rank of the object. 180

PCA of Lemmatized Texts (Zoom: Starnone & Ferrante

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$$D(\sigma_1, \sigma_2) = \sum_{i=1}^n |\sigma_1(i) - \sigma_2(i)|$$

Since we calculate the pairwise rank distances 182 between all texts, the result is a square similarity 183 matrix, which serves as input for the Hierarchi-184 cal Clustering Algorithm. For all our experiments 185 we used Hierarchical Clustering Algorithm with 186 average linkage. Previous studies showed that den-187 dograms obtained through this method are highly 188 accurate in grouping together texts written by the 189 same authors (Popescu and Dinu, 2008; Dinu et al., 190 2008, 2012). 191

#### 2.3 Unmasking 192

Our second approach was the Unmasking method 193 (Koppel et al., 2007) which measures the rate of 194 degradation of a classifier accuracy as features are 195 iteratively removed. The underlying idea of this 196 method is the fact that only a small number of 197 features would contribute to the differentiation be-198 tween texts pertaining to the same author. Thus, 199 200 when we train a classifier to distinguish between texts written by the same author, we would observe 201 a drastic decline of accuracy as the most distin-202 guishing features are removed. We reproduced the 203 method as described by Koppel in the following 204 way, testing in turns one book against a corpus of 205 206 several books written by a single author:

- 1. Define X as the book we want to analyze and 207 A as a collection of books written by a single 208 author. 209
- 2. Break all texts into chunks of 500 words each. 210
- 3. Identify the 250 most frequent words across 211 X and A to use as features. 212
- 4. Represent each chunk as a numerical feature 213 vector using the Bag of Words (BoW) ap-214 proach. 215
- 5. Balance the datasets by randomly discarding 216 chunks from A so that X and A contain the 217 same number of chunks. 218
- (a) Repeat 10 times: 219

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- (b) Train a linear-kernel Support Vector Ma-220 221 chine (SVM) to distinguish between Xand A using 10-fold cross-validation. 222
  - (c) Find the top 3 negative and top 3 positive distinguishing features and remove them.



Figure 1: 3D PCA visualization of novels

- 6. Repeat the entire process (Step 5) 10 times, 225 each time with a different random selection of 226 text chunks. 227
- 7. Plot the average accuracy at each step to ob- 228 serve how the classifier performs as distin- 229 guishing words are removed. 230

#### 3 **Experiments and Analysis** 231

We will now discuss in detail the results of our 232 experiments. 233

#### **Exploratory Analysis - PCA Visualization** 234 3.1

The first step we performed was Exploratory Data 235 Analysis (EDA). We chose to perform a 3D PCA vi- 236 sualization on the full corpus in order to gain some 237 intuition about the similarities of the novels in our 238 corpus. As mentioned above, we pre-processed the 239 texts by removing punctuation and lemmatizing the 240 words. For this first preliminary step, we chose to 241 retain all the words (function words and content 242 words) in order to capture as much stylistic and 243 lexical variation as possible. Subsequently, we per- 244 formed Principal Component Analysis (PCA) on 245 the TF-IDF representations of the texts. The results 246 shown in Fig. 1 show a clustering tendency for 247 Elena Ferrante (green "X" symbol) and Domenico 248 Starnone's novels representations (red "X" sym- 249 bol). 250

#### 251 3.2 Clustering via Rank Distance

We started the experiments with the Clustering via 252 RD method - a method which aims to capture the 253 254 similarity among texts according to the similarity of the ranks of the functional words pertaining to each 255 256 text. By focusing solely the functional words, the method is able to retain the actual stylistic finger-257 print of each author, rather than lexical differences 258 that might arise from the varying topics of the novels. As per the methodology detailed in Section 260 2, we calculated the pairwise RD of the functional words frequencies extracted from each text, and the 262 263 resulting square matrix was used as input for the 264 Hierarchical Clutering model.

# 265 3.2.1 Rank Distance Experiment 1: All266 Authors

To check whether the RD Clustering method accurately clusters together texts written by the same authors, in the first experiment we included all 269 works available in our corpus(Fig. 2). We observe 270 271 that texts written by the same authors are clustered together with high precision. In the case of Fer-272 rante (red) and Starnone (blue) on the other hand, 273 not only are they clustered next to one another, 274 275 but there is no demarcation between the two authors. The exception that we are going to encounter 276 throughout all our experiments is Starnone's Ex 277 cattedra, his first work which in our experiments 278 shows little to no resemblance to his other works. 279 This is consistent with previous research employing 280 281 different methods (Tuzzi et al., 2018a). One possible explanation is the literary style of the novel, which takes the form of a diary. As we will see 284 in the experiments involving non-literary works, the clustering method is highly sensible to variations in texts categories (literary vs. non-literary). To test the quality of the clusters, we calculated 287 and obtained Cophenetic Correlation Coefficient 289 of 0.78. This suggests that the clustering structure is reasonably well-preserved, as CCC mea-290 sures how faithfully the hierarchical clustering represents the original pairwise distances (Sokal and 292 Rohlf, 1962). This first experiment points towards 294 Domenico Starnone as the very likely author behind Ferrante's texts, strengthening the conclusion 295 reached by previous research. In order to further this claim, we conducted several additional experi-297 ments. 298



Figure 2: Full Corpus Clustering

### 3.2.2 Rank Distance Experiment 2: Just One 299 Novel 300

In our second experiment, we wanted to see how 301 Elena Ferrante and Domenico Starnone's novels 302 will be clustered when we only include one author's 303 full works, along with just a single novel from the 304 other. Specifically, we wanted to see whether Ferrante's novels are clustered alongside Starnone's 306 because they share group similarities, or whether 307 only certain Ferrante novels share similarities with 308 Starnone. 309

### • Experiment 2.1: Iterative clustering 1 310

In the first experiment of this type, the corpus contained all of Domenico Starnone's novels and, iteratively, only one of Ferrante's works. Without any exceptions, each of Ferrante's novels was clustered next to Starnone's. Fig. 3 ilustrates one of the clusters obtained, while the others can be found in the Appendix (Fig. 9-16).

### • Experiment 2.2: Iterative clustering 2 318

In order to test whether the reverse stands true as 319 well, we repeated the experiments by keeping the 320



Figure 3: I giorni dell'abbandono vs. Full Corpus

full Ferrante corpus in the clustering data frame and
iteratively keeping only one of Starnone's novels.
As seen in Fig. 4, the results mirrored the previous
findings and each of Starnone's novels clustered
alongside the Ferrante. For the full experiment
results, see Appendix, Fig. 17-30.

# 327 3.2.3 Rank Distance Experiment 3: No328 Starnone

Finally, we removed all of Starnone's works from 329 330 the corpus to test whether iteratively clustering a single novel by Ferrante would result in a close 331 match with another author. As anticipated, when only one of Ferrante's novels was being clustered, 333 each iteration grouped it with a different writer. 334 335 This outcome confirmed that no other author in the corpus shares the same level of similarity with 336 all of Ferrante's novels as is the case of Starnone. The full experiment results are presented in the 338 Appendix, Fig. 31-38. 339



Figure 4: Autobiografia erotica di Aristide Gambia vs. Full Corpus

# 3.2.4 Rank Distance Experiment 4: Anita Raja 340

Having confirmed that Domenico Starnone is a 342 strong candidate as the writer behind Ferrante's 343 novels, we moved on to testing the Anita Raja hy- 344 pothesis. Since Anita Raja is not a fiction writer 345 herself, we had to rely on fiction books translated 346 by Anita Raja and on non-fiction writings such 347 as prefaces and afterwords. Thus, we expanded 348 the corpus with the texts undisputedly authored by 349 Anita Raja: 8 novels translated by Anita Raja and 350 7 prefaces and afterwords authored by her. We 351 ran the experiment on the whole corpus and, ac- 352 cording to our metric, there is no evident similarity 353 between Elena Ferrante's and Raja's (green). When 354 we removed Domenico Starnone from the corpus 355 but kept all of Ferrante's works, Elena Ferrante's 356 novels were clustered in the vicinity of Raja's trans- 357 lations, but in a clearly separate cluster. 358

Finally, when we iteratively ran the experiment 359 on Ferrante's novels in the absence of Domenico 360



Figure 5: I giorni dell'abbandono vs. Raja Corpus

Starnone, only three of Ferrante's novels were clus-tered in the vicinity of Raja (eg. Fig. 5).

All of these results suggest that Raja is unlikelyto be the author behind Elena Ferrante.

We note the fact that Raja's texts were separated 365 into two different clusters: the translations and the non-literary texts. The non-literary texts cluster was completely separated from the rest of the clus-368 ters, which suggests that style homogenity (in the 369 sense all texts should pertain to the same text cate-370 gory, be it literary or non-literary) is important for 371 the method's accuracy. It is possible that the RD 372 dis-similarity is caused by the fact that we com-373 pared a novel with a non-literary text. Thus, we 374 acknowledge that a different corpus, tailored to 375 376 non-fiction writings, could yield more definitive results. 377

#### 378 3.3 Unmasking

To further test the Starnone hypothesis with a separate approach, we chose the unmasking method developed by Koppel and Schler. One of the advantages of this approach is that it doesn't necessarily require that the real author of the analyzed text is 383 among the proposed candidates. In other words, 384 if none of the proposed candidates authored Ferrante's novels, none of the accuracy plots will show 386 an abrupt decrease as discriminative features are removed. We ran several texts with different chunks 388 sizes (250, 500 and 1000 words) and features (stopwords only and all words). The results were highly 390 similar and all pointed outlined Domenico Starnone 391 in stark contrast with the rest of the candidates. For 392 space reasons, we will only report the results obtained with the following parameters: all words 394 and chunks size of 500 words. 395

#### 3.3.1 Unmasking Elena Ferrante

To better illustrate the results of the unmasking 397 experiments, we will present our results in 3 iterative steps, discussing the results we obtained for 399 Elena Ferrante's novel *I giorni dell' abbandono*. 400 The results obtained for the rest of the novels in the corpus can be found in the Appendix (Fig. 39). We tested Elena Ferrante's novel against 3 versions of the initial corpus. Importantly, whenever Ferrante was included in the comparison corpus, the novel currently being analyzed itself was excluded from the Ferrante corpus. The three corpus configurations were as follows: 408

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- Corpus 1: Excluding both Domenico Starnone 409
   and Elena Ferrante 410
- Corpus 2: Excluding only Domenico Starnone 411
- Corpus 3: Full corpus, including both 412
   Domenico Starnone and Ferrante
   413

In the first experiment (Fig. 6(a)) we applied 414 the unmasking method on Elena Ferrante's novel 415 against a corpus that included neither Domenico 416 Starnone, nor other novels authored by Elena Fer- 417 rante. As mentioned in the Methodology section, 418 according to the unmasking method the true author 419 of a given text is the one for which we can observe 420 a steep degradation in classification accuracy as dis- 421 criminatory features are removed. As seen in the 422 first plot that resulted from applying this method, 423 the classification accuracy remained relatively high 424 (around 0.7) as features were iteratively removed. 425 This suggests that the differences between Elena 426 Ferrante's novel and the novels authored by all the 427 authors included in Corpus 1 run deep and remain 428 consistent enough to accurately differentiate the 429 authors even when being subjected to iterative re- 430 movals. 431

In the second experiment (Fig. 6(b)), we added 432 the rest of Elena Ferrante's novels to the corpus 433 (excluding I giorno dell' abbandono, the novel 434 being tested). There is now a clear difference in 435 the steepness of the accuracy drop as features are 436 eliminated, especially in the first removal iterations. 437 This suggests that all of Elena Ferrante's novels are 438 written by the same author, and that the differences 439 between the novels are rather shallow and due to 440 topic differences, not to underlying unconscious 441 style. When we remove only the top 6 differen-442 tiating features, there is a steep decline in the al-443 gorithm's ability to differentiate Elena Ferrante's 444 novel I giorni dell' abbandono and the corpus com-445 prised of the rest of Elena Ferrante's novels. 446

For the third experiment, we added Domenico 447 Starnone's novels to the previous corpus. The 448 resulting plot (Fig. 6(c)) confirmed our previ-449 ous results: there is a great degree of similarity 450 451 among Elena Ferrante's novels and those authored by Domenico Starnone. When trying to classify 452 chunks of Elena Ferrante's novel I giorni dell' ab-453 bandono against chunks extracted from the corpus 454 of novels written by Domenico Starnone using the 455 456 Unmasking method, there is a very steep decrease in accuracy as the top differentiating features are 457 removed - which suggests that the differences be-458 tween the texts are shallow, probably caused by 459 plot differences. Furthermore, the accuracy degra-460 dation curve resulting from Domenico Starnone's 461 corpus (purple) is very similar to the one that re-462 sulted when the method was applied on the Elena 463 464 Ferrante corpus (orange).

Similarly, for all the 8 of Elena Ferrante's novels, the unmasking method revealed Domenico
Starnone as a clear candidate for the authorship
of Elena Ferrante's novels. All the 8 plots that
resulted in this experiment can be found in the Appendix (Fig. 39).

#### 471 3.3.2 Unmasking Domenico Starnone

Once established that the unmasking method ap-472 plied on the Ferrante corpus reveals Domenico 473 Starnone as a possible author, we wanted to further 474 explore the similarity of the novels signed by Elena 475 Ferrante and Domenico Starnone by applying the 476 unmasking algorithm on the Starnone corpus. Our 477 478 hypothesis was that the reverse should also be true: if Domenico Starnone and Elena Ferrante are one 479 and the same author, then by iteratively remov-480 ing distinctive features when classifying chunks 481 from a Starnone novel against the Ferrante corpus, 482









Figure 6: Unmasking Elena Ferrante

we would see a more pronounced decline in the 483 accuracy for the Starnone-Ferrante pair than for 484 Starnone against other authorship candidates. 485

To better illustrate our results, we applied the 486 same 3-corpora method that we previously dis- 487 cussed in the case of Elena Ferrante: Corpus 1 488 Excluding both Domenico Starnone and Elena Fer- 489 rante, Corpus 2: Excluding only Elena Ferrante, 490 Corpus 3 Full corpus, including both Domenico 491 Starnone and Ferrante. 492

Our experimens have proven our hypothesis correct and mirror the results we had obtained for 494 Elena Starnone. Fig. 7 shows the accuracy plot 495 for Domenico's Starnone novel *Autobiografia erotica di Aristide Gambía* against the corpora of nov-



(a) Autobiografia erotica di Aristide Gambía vs. Corpus 1



(b) Autobiografia erotica di Aristide Gambía vs. Corpus 2



Figure 7: Unmasking Domenico Starnone

els written by the other candidates. The sharpest 498 decline in accuracy can be seen when Starnone's 499 novel (orange) was classified against chunks extracted from the Ferrante corpus (grey). Thus, it is again proven that the differences between texts au-502 503 thored by Domenico Starnone and Elena Ferrante are shallow, and that by removing only 6 of the 250 504 features the accuracy decreases drastically. The 505 same results were obtained for the full Starnone corpus with the exception of the 1987 novel Ex cattedra (See Appendix, Fig. 40). 508

Applying the unmasking method on Elena Ferrante and Domenico Starnone's novel reveals once again the high degree of similarity among the two 511 authors. If we applied the unmasking method to 512 any of the novels authored by Elena Ferrante in the 513 absence of other texts written by her, it would appear as though Domenico Starnone was a sole clear 515 candidate for the authorship - and the same situation is mirrored in the case of Domenico Starnone's 517 novels when compared to texts authored by Elena 518 Ferrante. 519

#### 4 Conclusions

We investigated the complicated and fascinating 521 authorship attribution case of Elena Ferrante in an 522 attempt to test the Starnone hypothesis, who again 523 and again is deemed to be the true author of the 524 Ferrante novels by stylometric research, and assess 525 the claims regarding Anita Raja - as so far only one 526 computational study has taken her writings into 527 account (Cortelazzo et al., 2024). 528

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By using Clustering via Rank Distance and Unmasking as our two main authorship attribution 530 methods, we aimed to cover a wide range of stylistic and methodological perspectives in order to increase the degree of confidence in our results. 533

Thus, we employed both supervised (Unmasking 534 based on SVM models) and unsupervised (Clus-535 tering)learning methods. In addition, we ran experiments based on both functional words only (in 537 the Clustering experiments) and the full vocabu-538 lary employed by the authors (in the Unmasking 539 experiments, as studies such as (Juola, 2017) show 540 that lexical choice expressed through content words 541 may also contribute to building the lexical finger-542 print of an author). 543

All of the clustering experiments revealed a great 544 degree of similarity between Elena Ferrante and 545 Domenico Starnone's works, while the Unmasking experiments showed that the features which 547 discriminate between the two authors are shallow. 548

Although a wider non-fiction corpus that in- 549 cludes samples from different authors might help 550 bring further and more definite proof, our results on 551 the current corpus show that Anita Raja is not the 552 author behind Elena Ferrante and that the profile of 553 Domenico Starnone is the one that most resembles 554 that of Elena Ferrante. Our findings align with previous research and bring further insights into the 556 tight similarity between Ferrante and Starnone's 557 works. 558

### **559 5 Limitations and Ethical Concerns**

560 One of the main limitations of our study is the 561 assumption that the real author must be among 562 the proposed candidates. In reality, assembling a 563 corpus that comprehensively includes all possible 564 authors would be impossible. While we ensured 565 that each author was represented by a minimum 566 of four works, a more extensive corpus could have 567 yielded more definitive results.

Secondly, in the case of Anita Raja, our analysis compares her non-fiction writings with several
novels, meaning that some of the observed differences may be caused by genre variation rather than
authorship alone. Future research should incorporate a corpus specifically designed for non-fiction
works.

Finally, we acknowledge the ethical complexi-575 ties surrounding our study, particularly in relation 576 to an author who is still alive and has deliberately 577 chosen to remain anonymous. Respecting an au-578 thor's right to privacy must be carefully balanced 579 with literary and academic inquiry, and our study 581 is only driven by research motives and all our conclusions are tied to the stylometric similarities of 582 written texts voluntarily published by the authors.

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## Figure 8: List of Italian Stopwords

a	adesso	ai	al	alla
allo	allora	altre	altri	altro
anche	ancora	avere	aveva	avevano
ben	buono	che	chi	cinque
comprare	con	consecutivi	consecutivo	cosa
cui	da	del	della	dello
dentro	deve	devo	di	doppio
due	e	ecco	fare	fine
fino	fra	gente	giu	ha
hai	hanno	ho	il	indietro
invece	io	la	lavoro	le
lei	lo	loro	lui	lungo
ma	me	meglio	molta	molti
molto	nei	nella	no	noi
nome	nostro	nove	nuovi	nuovo
0	oltre	ora	otto	peggio
pero	persone	piu	poco	primo
promesso	qua	quarto	quasi	quattro
quello	questo	qui	quindi	quinto
rispetto	sara	secondo	sei	sembra
sembrava	senza	sette	sia	siamo
siete	solo	sono	sopra	soprattutto
sotto	stati	stato	stesso	su
subito	sul	sulla	tanto	te
tempo	terzo	tra	tre	triplo
ultimo	un	una	uno	va
vai	voi	volte	vostro	

## 695 A Appendix

Author	Works
Eraldo Affinati	Bandiera Bianca, Campo del sangue, Elogio del ripetente, L'uomo del
	futuro
Niccolò Ammaniti	Fango Ti prendo e ti porto via Io non ho paura Come Dio comanda
Andrea Bajani	Mi spezzo ma non m'impiego. Se consideri le colne. Ogni promessa Mi
Alluica Dajalli	Mi spezzo ma non m implego, se consideri le coipe, Ogni promessa, Mi
	riconosci
Marco Balzano	Il figlio del figlio, L'ultimo arrivato, Bambino, Resto qui
Alessandro Baricco	Castelli di rabbia, Oceano mare, City, Questa storia
Stefano Benni	Il bar sotto il mare, Di tutte le ricchezze, Prendiluna, Achille piè veloce
Enrico Brizzi	Jack Frusciante è uscito dal gruppo, L'inattesa piega degli eventi, Il
	matrimonio di mio fratello, Il sogno del drago
Gianrico Carofiglio	Testimone inconsapevole, Ad occhi chiusi, Il passato è una terra
	straniera, Ragionevoli dubbi, Le perfezioni provvisorie, Il silenzio
	dell'onda, Il bordo vertiginoso delle cose, Una mutevole verità, La
	regola dell'equilibrio
Erri De Luca	Tu, mio, Tre cavalli, Il giorno prima della felicità, I pesci non chiudono
	gli occhi
Diego De Silva	Certi bambini, Non avevo capito niente, Mia suocera beve, Sono con-
	trario alle emozioni
Giorgio Faletti	Io uccido, Niente di vero tranne gli occhi, Fuori da un evidente destino,
	Io sono Dio, Tre atti e due tempi
Elena Ferrante	L'amore molesto, I giorni dell'abbandono, La figlia oscura, L'amica
	geniale, Storia del nuovo cognome, Storia di chi fugge e di chi resta,
	Storia della bambina perduta, La vita bugiarda degli adulti
Marcello Fois	Stirpe, Nel tempo di mezzo, Sangue dal cielo, Memoria del vuoto
Nicola Lagioia	Tre sistemi per sbarazzarsi di Tolstoj, Riportando tutto a casa, La ferocia,
	Occidente per principianti
Dacia Maraini	Memorie di una ladra, La lunga vita di Marianna Ucria, Buio, Il treno
	dell'ultima notte, La grande festa
Margareth Mazzantini	Non ti muovere, Venuto al mondo, Mare al mattino, Nessuno si salva da
	solo

Author	Works
Melania G. Mazzucco	Il bacio della Medusa, Vita, Un giorno perfetto, Un giorno da cani, La
	lunga attesa dell'angelo
Michela Murgia	Il mondo deve sapere. Romanzo tragicomico di una telefonista pre-
	caria, Viaggio in Sardegna. Undici percorsi nell'isola che non si vede,
	Accabadora, Ave Mary. E la Chiesa inventò la donna
Edoardo Nesi	Rebecca, Storia della mia gente. La rabbia e l'amore della mia vita di
	industriale di provincia, L'estate infinita, Le nostre vite senza ieri
Paolo Nori	Bassotuba non c'è, La matematica è scolpita nel granito, Tredici favole
	belle e una brutta, La bambina fulminante
Francesco Piccolo	Storie di primogeniti e figli unici, Allegro occidentale, L'Italia spensier-
	ata, La separazione del maschio, Momenti di trascurabile felicità, Il
	desiderio di essere come tutti, Momenti di trascurabile infelicità
Tommaso Pincio	Lo spazio sfinito, Hotel a zero stelle. Inferni e paradisi di uno scrittore
	senza fissa dimora, Pulp Roma, La ragazza che non era lei
Christian Raimo	Latte, Il peso della grazia, Dov'eri tu quando le stelle del mattino
	gioivano in coro?, Tranquillo prof, la richiamo io
Tiziano Scarpa	Occhi sulla graticola, Stabat Mater, Le cose fondamentali, Il brevetto del
	geco
Domenico Starnone	Ex cattedra, Eccesso di zelo, Via Gemito, Prima esecuzione, Autobi-
	ografia erotica di Aristide Gambìa, Lacci, Scherzetto, Confidenza, Il
	vecchio al mare, Le false resurrezione, Labilità, La retta via. Otto storie
	di obiettivi mancati, Spavento, Vita mortale e immortale della bambina
	di Milano
Susanna Tamaro	La testa tra le nuvole, Per voce sola, Va' dove ti porta il cuore, Ascolta
	la mia voce, Ogni angelo è tremendo
Chiara Valerio	Fermati un minuto a salutare, Almanacco del giorno prima, Storia umana
	della matematica, Il cuore non si vede
Sandro Veronesi	Venite venite B-52, Caos calmo, Brucia Troia, Terre rare
Simona vinci	Dei bambini non si sa niente, Brotner and Sister, Strada Provinciale Ire,
	Come Prima Delle Madri

Table 1: Full Corpus



Figure 9: Experiment 2.1 - Ferrante, La figlia oscura

Figure 10: Experiment 2.1 - Ferrante, La vita bugiarda degli adulti



Figure 11: Experiment 2.1 - Ferrante, L'amica geniale

Figure 12: Experiment 2.1 - Ferrante, L'amore molesto



Figure 13: Experiment 2.1 - Ferrante, Storia del nuovo cognome

Figure 14: Experiment 2.1 - Ferrante, Storia della bambina perduta



Figure 15: Experiment 2.1 - Ferrante, Storia di chi fugge e di chi resta

Figure 16: Experiment 2.2 - Starnone, Confidenza



Figure 17: Experiment 2.2 - Starnone, Eccesso di zelo



Figure 18: Experiment 2.2 - Starnone, Ex cattedra



Figure 19: Experiment 2.2 - Starnone, Il vecchio al mare



Figure 20: Experiment 2.2 - Starnone, La false resurrezioni



Figure 21: Experiment 2.2 - Starnone, Labilita



Figure 22: Experiment 2.2 - Starnone, Lacci



Figure 23: Experiment 2.2 - Starnone, Otto storie



Figure 24: Experiment 2.2 - Starnone, Prima esecuzione



Figure 25: Experiment 2.2 - Starnone, Scherzetto



Figure 26: Experiment 2.2 - Starnone, Spavento



Figure 27: Experiment 2.2 - Starnone, Via Gemito



Figure 28: Experiment 2.2 - Starnone, Vita mortale e immortale della bambina di Milano



Experiment 3 - Ferrante, I giorni

dell'abbandono





Figure 31: Experiment 3 - Ferrante, La vita bugiarda degli adulti

Figure 32: Experiment 3 - Ferrante, L'amica geniale



Figure 33: Experiment 3 - Ferrante, L'amore molesto

Figure 34: Experiment 3 - Ferrante, Storia del nuovo cognome



Figure 35: Experiment 3 - Ferrante, Storia della bambina perduta

Figure 36: Experiment 3 - Ferrante, Storia di chi fugge e di chi resta



Figure 37: Unmasking Elena Ferrante



(a) Starnone, Autobiografia erotica di Aristide Gambia

#### (b) Starnone, Confidenza



(c) Starnone, Eccesso di zelo

(d) Starnone, Ex cattedra





(f) Starnone, La false rezurrezioni





Figure 38: Unmasking Domenico Starnone